

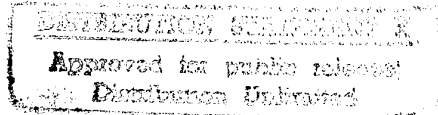
LABORATOIRE DE
PHYSIQUE ET
MECANIQUE DES
MATERIAUX

(U.R.A. CNRS N° 1215)

I.S.G.M.P.

Institut Supérieur de Génie
Mécanique et Productique

UNIVERSITE DE METZ



INTERIM REPORT N° 2

Title of the Research Project: "STRESS CONCENTRATORS AND RATE EFFECTS
IN FORMATION OF ADIABATIC SHEAR BANDS"

Principal Investigator: Prof. J.R.Klepaczko

Contractor: Naval Regional Contracting Center,
Detachment London, Ruislip, MIDDLESEX, UK

Contract N°: N68171-95-C-9071

Report N°: The Second Interim Report

Period: Sept.1/95 - Nov.30/95

DTIC QUALITY INSPECTED

" The Research reported in this document has been made possible through the support and sponsorship of the U.S. Government through its European Research Office of the U.S. Army. This Report is intended only for the internal management use of the Contractor and U.S. Government. "

J. Klepaczko

19960212 174

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
<small>Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Service, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.</small>				
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE Nov.28	3. REPORT TYPE AND DATES COVERED 2-nd Int. Rep. 09/01/95-11/30/95		
4. TITLE AND SUBTITLE Stress Concentrators and Rate Effects in Formation of Adiabatic Shear Bands		5. FUNDING NUMBERS Contract N° N68171-95-C-9071 Project N° : WK2Q6C-7058-AN01		
6. AUTHOR(S) Prof. J.R.Klepaczko				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Laboratory of Phys. and Mech. of Materials Metz University Ile du Saulcy, F-57045 METZ, France		8. PERFORMING ORGANIZATION REPORT NUMBER N/A		
9. SPONSORING, MONITORING AGENCY NAME(S) AND ADDRESS(ES) USARDSG-UK, Environmental Science Branch Dr. R.Reichenbach, Edison House 223 Old Marylebone Rd., London NW1-5TH, UK		10. SPONSORING, MONITORING AGENCY REPORT NUMBER		
11. SUPPLEMENTARY NOTES NONE				
12a. DISTRIBUTION/AVAILABILITY STATEMENT Distribution unlimited		12b. DISTRIBUTION CODE N/A		
13. ABSTRACT (Maximum 200 words) This Abstract covers the second period of the Contract on behavior of stress concentrators in an alloy steel at high loading rates. During this period two researchers have been working on numerical analyses of stress concentrators at high loading rates and on the Critical Impact Velocity in shear. Both numerical studies by the Finite Element method (Abacus) are performed for VAR 4340 steel of hardness 52HRC. Available literature data have been used to formulate a constitutive model for VAR 4340 steel. A new series of tests are in the final stage of preparation. The Modified Double Shear technique (MDS) test technique will be applied to specimens of four different stress concentrators. One part of specimens have been already machined (VAR 4340), but another plaque of this steel is needed to end machining. After machining and thermal treatment the specimens will be tested at different impact velocities. Experimental setup for MDS tests is under Modification.				
14. SUBJECT TERMS Adiabatic Shear Bands? Stress Concentrators in Impact Fracture		15. NUMBER OF PAGES 2		
		16. PRICE CODE		
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT	